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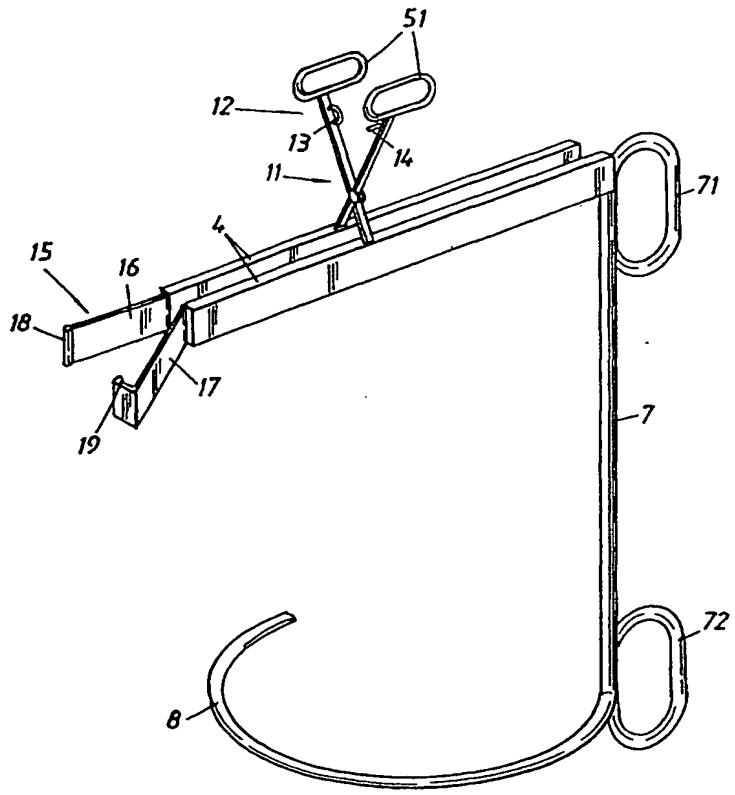
(54) Title: BAG HANDLING DEVICE

(57) Abstract

A device for carrying and emptying a bag that contains pourable material and that has already been opened, comprises two clamping strips (4), a latchable mechanism (11) for moving the strips (4) towards and away from a position wherein they clamp the major part of the flat-laid length of the neck (2) of the bag. Endportions (16, 17) of the strips (4) can be folded away from the bagneck to permit pouring while the bag is carried by the device.



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BAG HANDLING DEVICE

The present invention relates to a device for carrying and emptying a bag or sack containing pourable material, particularly a bag that has already been opened,.

In constructional building work and particularly in restoration work carried out on apartments and apartment buildings for instance, there are frequent occasions upon which an open bag that contains pulverulent material shall be moved from one place to another. The bag may contain, for instance, powder from which paste filler is prepared. Such powders may contain substances that are hazardous to people's health and the powder is often very fine and can induce allergenic reactions in people present in the room if and when the powder leaves the bag. The powder can also dirty the surroundings.

When full, bags of the kind concerned can often weigh from 10-40 kg and are therewith not easily transported manually, even over relatively short distances. When reaching the destination of such a bag, the bag will often be dumped quickly onto the ground, causing a cloud of dust to rise up into the surroundings from the open mouth of the bag.

It is also difficult to pour from the bag a limited and chosen volume of its contents.

When it is known that a bag shall not be fully emptied of its contents immediately, it is normal practice to open only one end part of a flat-sealed neck of the bag, so as to minimise the risk of dust emission by minimising the area through

which the contents of the opened bag can be poured while, at the same time, maintaining the integrity of the flat-sealed bag neck for as long as possible, with the intention of minimising the risk of the bag neck being torn as it is carried manually, by gripping the neck of the bag directly. However, a small bag opening makes emptying of the bag contents difficult to achieve.

The object of the invention is to provide a device that will facilitate carrying and emptying of an open bag and also enable the bag opening to be kept closed.

This object is achieved with the inventive device defined in the following Claim 1.

Further embodiments of the invention are defined in the following dependent Claims.

The inventive device is thus based on a pair of clamping strips which function to hold the flat-sealed neck of a bag clamped therebetween through the action of an associated mechanism. The mechanism includes a handle that lies immediately above the centre of gravity of the bag when the bag stands upright and also a catch means which functions to hold the clamping strips in firm interaction with the neck of the bag as the bag is being carried. The clamping strips leave one end-part of the flat-sealed neck of the bag free, wherewith at least this given part of said neck may open. One of the clamping strips carries at the other end of said neck a rod that extends down along the bag, perpendicular to the longitudinal direction of the strips. The rod carries at a bottom end-part a part-circular or generally U-shaped element

that embraces the lower part of the bag. The lower part of the rod also carries a further handle. When the clamp is opened so as to enable the opening or hole made in the bag to be widened so that material can leave the bag more easily, the workman is able to pour material from the bag while using the pouring handles connected to the rod, wherewith the part-circular element will cause the bag to tilt or lean at the angle governed by the rod so as to enable material to be poured from the bag more easily. Immediately after completing a pouring operation, the exposed opening can be fully closed by means of the device, for instance prior to depositing the bag carrying said device onto an underlying support surface, therewith minimising the risk of creating dust.

The invention will now be described in more detail with reference to an exemplifying embodiment thereof and also with reference to the accompanying drawings.

Fig. 1 is a schematic, perspective view of one embodiment of the inventive device.

Fig. 2 is a side view of the device in coaction with a powder-filled bag or sack.

Fig. 3 illustrates the object of Fig. 2 from above, with an open closure means.

Fig. 4 is a partial view of the subject of Fig. 3, with a longitudinal closure means.

Fig. 2 shows a sack 1 which contains a dusty, pulverulent material. The bag 1 has a flat-sealed neck 2, which is torn

open at at least one end part 3. The neck 2 of the bag is clamped between two clamping strips 4 that include a handle 5, said handle being located above the centre of gravity of the bag 1 when the bag stands upright. It will also be seen from Fig. 2 that one of the clamping strips 4 carries a downwardly extending rod 7 which includes at its bottom end a generally part-circular element 8 that extends around the forward part 9 of the bag 1 to which the device is fitted, said bag part 9 lying in the region of the open part 3 of the bag neck.

The rod 7 carries a respective pouring handle 71 and 72 at its upper and lower ends.

As will be seen from Fig. 1, the clamping strips 4 are interlinked by a scissors-like mechanism 11 that includes handle-parts 51 which coincide to form the handle 5 in the non-clamped state of the clamping strips 4. The scissors-like mechanism also includes a catch means 12 that comprises an eye 13 on one mechanism part and a hasp 14 on the other mechanism part, said hasp coacting with said eye 13 so as to enable the mechanism 11 to be latched in the bag-carrying state of the clamping strips 4.

A closure means 15 is carried on the end of the clamping strips 4 adjacent the part 3 of the neck that has been torn open. The closure means 15 is comprised of a first clamping bar 16 which is pivotally connected to one of said strips 4, and a second clamping bar 17 which is pivotally connected to the other of said clamping strips, wherewith the bars 16, 17 carry at their free ends known snap-latching elements 18 and 19, which enable the closure means 15 to be readily opened

and closed manually. The clamping bars 16, 17 are pivotally mounted on mutually parallel pivot pins which extend perpendicular to the longitudinal direction of the clamping strips 4 so that when said bars are in an opening-sealing position, they enable the flat-sealed neck portion 3 of the bag that projects out beyond the ends of the clamping strips 4 to be sealingly clamped together. The closure means 15 can be readily opened from this mechanical state, to expose the part of the neck that has already been opened, as illustrated in Fig. 3. The bag contents can be readily poured from the bag with the closure means in the Fig. 3 position, by grasping the pouring handles 71, 72 with respective hands and tipping the bag 1 in a controlled fashion, possibly while also lifting the bag by means of the pouring handles 71, 72 and the clamping strips 4.

CLAIMS

1. A bag carrying and emptying device, particularly for carrying and at least partially emptying a bag (1) that contains pourable material and that has already been opened, **characterised** by two clamping strips (4), a mechanism (11) for moving the strips (4) towards and away from a position in which said strips clamp therebetween the major part of the flat-laid length of the neck (2) of said bag; in that the mechanism (11) includes means (12; 13, 14) for latching the clamping strips (4) in said clamping position; in that at least one of the clamping strips (4) includes a handle (5) for carrying the clamping strips and the bag (1) clamped therebetween; in that one end of each clamping strip (4) is extended by a respective bar-like element (16, 17) that forms part of a closure clamp (15) for closing an opened end-part (3) of the neck of the bag, wherein at least one of the bar-like elements (16, 17) is pivotally connected to an associated clamping strip (4) for pivotal movement towards and away from a position in which said bars close the opened part of said neck; and in that the free ends of said bars (16, 17) carry mutually coacting and manually openable and closable catch means (18, 19).

2. A device according to Claim 1, **characterised** in that the ends of the clamping strips (4) that lie distal from the bars (16, 17) carry a first pouring handle (71); in that a rod extends down from the region of said distal end of said clamping strip generally perpendicularly to the longitudinal direction of said clamping strips and carries a part-circular element (8) which is adapted to embrace the lower part of the bag (1) at least in the region beneath the clamping bars when

the bag stands upright and its upwardly located neck is carried by the clamping strips (4); and in that the rod (7) carries a further pouring handle (72) in spaced relationship with the first pouring handle (71).

Fig. 1

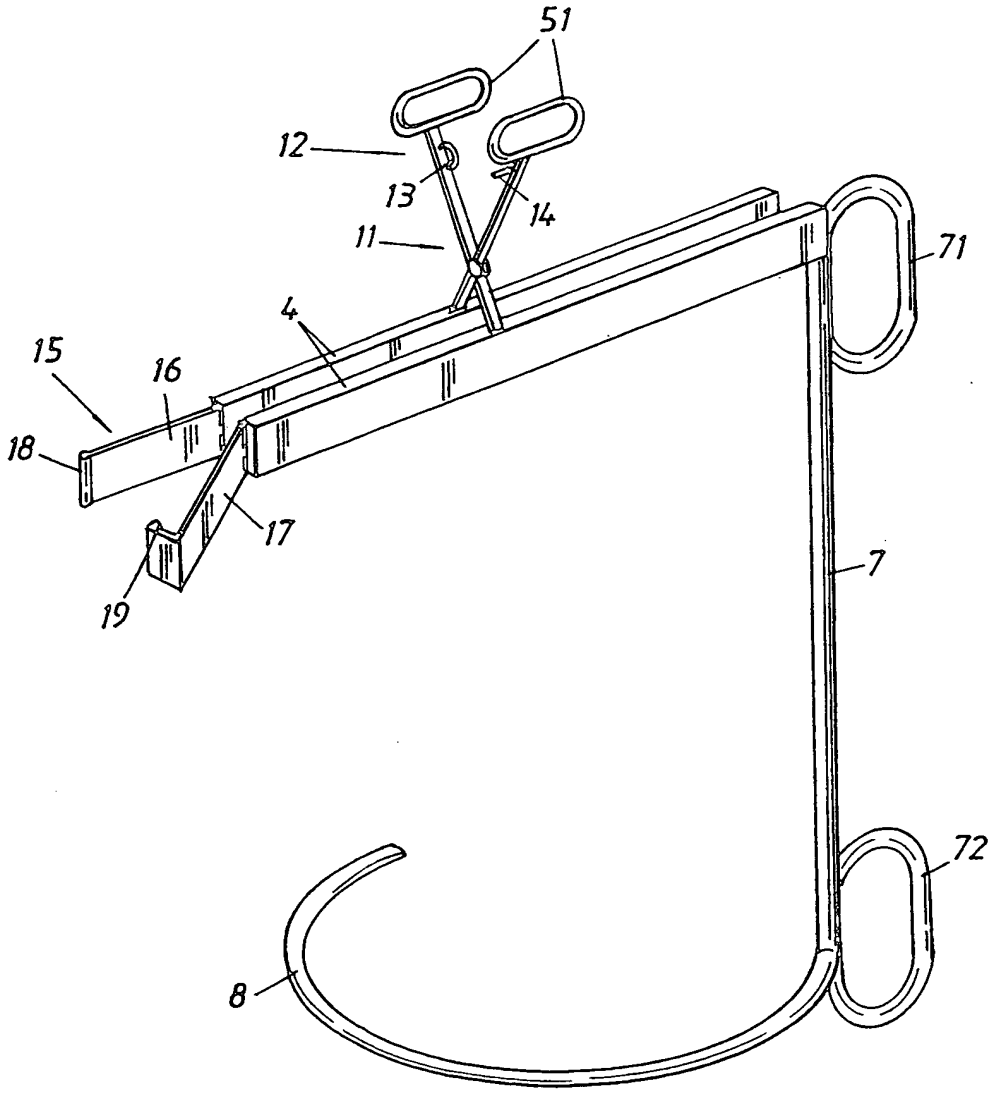


Fig. 2

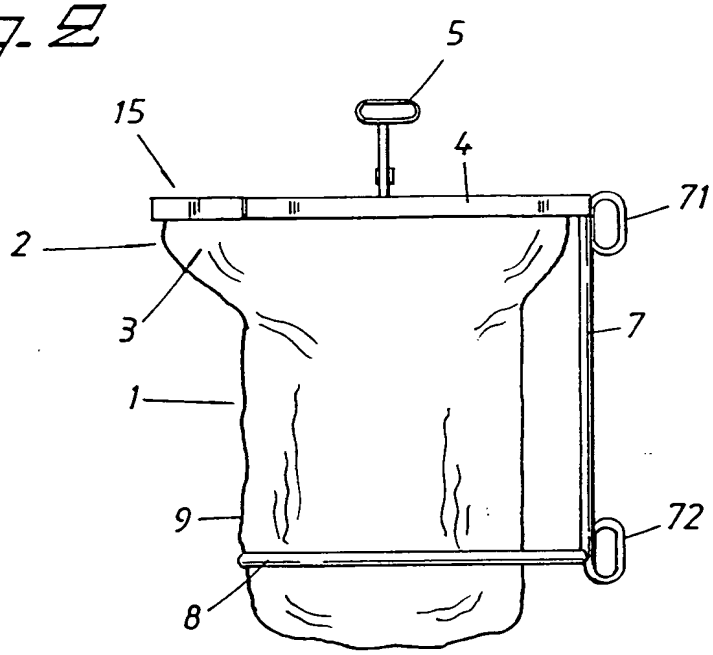


Fig. 3

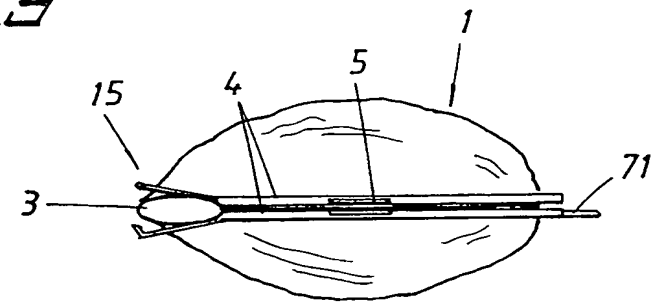
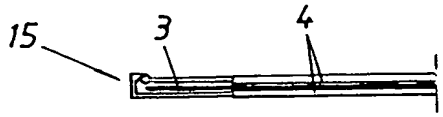


Fig. 4



INTERNATIONAL SEARCH REPORT

International application No.
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A. CLASSIFICATION OF SUBJECT MATTER

IPC7: B65D 33/00, B65D 33/06, B65D 33/16 // B65D 77/12, B65D 51/04
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: B65D, B65B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

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Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EDOC, WPI, JAPIO

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4896853 A (NYZEN), 30 January 1990 (30.01.90), figures 1-4, abstract	1-2
A	FR 2059363 A1 (UNIFOS KEMI AB), 28 May 1971 (28.05.71), figures 1,2,4	1-2
A	WO 9727119 A1 (RUIZ PEREZ ET AL), 31 July 1997 (31.07.97), figures 1-3, abstract	1-2
A	DE 4213591 A1 (CASADEMONT S.A.), 5 November 1992 (05.11.92), figures 1-3, abstract	1-2

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